Remarks/Arguments

Claims 1 – 4, 7, 8, 11, 12, 15 – 18, 21 – 24, 26 – 30, and 33 – 40 are pending and at issue in the present application.

Applicants have amended claims 8 and 36 to correct typographical errors and to further define the subject matter for which protection is sought and not to narrow the claimed subject matter. No new matter has been added by these amendments.

Applicants respectfully traverse the rejection of the claims at issue as obvious over one or more of Coleman et al., Gorlich et al., Motomura, Noel et al., Dworak et al., and Wildmoser.

Claim 1, and claims 2 – 4 and 7 dependent thereon, specify a method of severing and sealing a film formed of thermoplastic material. The method comprises the steps of feeding a plurality of layers of film between a cutting edge implement and opposing surface that have been moved relative to one another so as to pinch the plurality of layers of film therebetween. Any lateral movement of the cutting edge and opposing surface is suspended and the cutting edge implement, which has been heated to between about 600°F and about 800°F, contacts the opposing surface through the plurality of film. The layers of film are severed and contemporaneously sealed without burning the film.

Claim 8, and claims 11 and 12 dependent thereon, recite a method of severing and sealing a plurality of layers of film. The method utilizes a cutting edge implement that has been heated to between about 600°F and about 800°F. A plurality of layers of film are fed between the cutting edge and an opposing surface and the cutting edge and opposing surface are moved relative to each other to pinch the film therebetween. The layers of film are severed and simultaneously sealed without burning the film.

Claim 15, and claims 16 – 18, 21, and 22 dependent thereon, are directed towards an apparatus for severing and sealing a film formed of a thermoplastic material. The apparatus is comprised of a cutting edge implement that has been heated to a temperature between about 600°F and about 800°F, an anvil, and a means for feeding a plurality of film between the cutting edge and anvil. Additionally, the apparatus comprises means for moving the cutting edge and anvil relative to one another so as to pinch the film and means for suspending any relative lateral movement between the cutting edge, film and anvil. Upon

pressing the heated cutting edge towards the anvil with the film pinched between the two, the plurality of layers of film are severed and contemporaneously sealed without burning the film.

Claim 23, and claims 24 and 26 dependent thereon, recite a method of severing and sealing a plurality of layers of film formed of thermoplastic material. One step in the method is heating a cutting edge implement to between about 600°F and about 800°F so as to be sufficient to melt, but not burn, the thermoplastic material. A plurality of layers of film are pinched between a substrate and the cutting edge implement that has been heated within the specified range. The cutting edge implement, which has been heated to within the specified range, is pressed towards the substrate and severs the layers of film while also simultaneously sealing the layers.

Claim 27, and claims 28 – 30 and 33 – 35 dependent thereon, specify an apparatus for severing and sealing a film formed of a thermoplastic material. The apparatus is comprised of a cutting edge implement that has been heated to a temperature between about 600°F and about 800°F, an insulating insert for supporting the heated cutting edge implement, a base member for supporting the insulating insert, an anvil, and a means for feeding a plurality of film between the cutting edge implement and the anvil. Additionally, the apparatus comprises means for moving the cutting edge implement and anvil relative to one another so as to pinch the film and means for suspending any relative lateral movement between the cutting edge implement, film, and anvil. Upon pressing the heated cutting edge implement toward the anvil with the film pinched between the two, the plurality of layers of film are severed and contemporaneously sealed without burning the film.

Claim 36, and claims 37 – 40 dependent thereon, are directed towards an apparatus for severing and sealing a film formed of a thermoplastic material. The apparatus is comprised of a cutting edge implement that has been heated to a temperature between about 600°F and about 800°F, an anvil, feed rollers for feeding layers of film between the cutting edge implement and anvil, and at least one actuator. The actuator is used to move the heated cutting edge implement and anvil relative to one another so as to pinch the film therebetween. The actuator is also used to press the heated cutting edge implement towards the anvil to sever the layers of film and simultaneously seal the film without burning same.

None of the cited references discloses or suggests either singly or in combination, an apparatus or method to contemporaneously seal and cut a plurality of layers of film with a cutting edge implement heated between about 600°F and about 800°F that melts but does not burn thermoplastics.

In fact, Coleman et al. describes only a method of severing and sealing a plurality of layers of film by way of a heated blade (120) that pinches webs (28, 30 and 34) against an anvil roller (122) (col. 5, lines 13 – 28). No temperature range is disclosed within which the blade should be heated. Coleman et al. also fails to suggest the cut-off blade temperature should be limited to a temperature that does not burn the thermoplastic material.

Gorlich et al. discloses a method and apparatus for packaging meat utilizing non-simultaneous cutting and sealing steps of a film to a tray (col. 7, lines 22 – 23). Indeed, Gorlich et al. also discloses different temperature ranges for the cutting and sealing steps. In one embodiment, a "conventional heat sealing operation" is used (col. 7, lines 18 – 19) to seal the film (92) to a tray (55) with a cutter (88) to cut the film. The differentiation in temperature between the sealer (86) and cutter (88) is apparent from the need to supply a coolant to the cutter so the operation of the cutter is not "adversely affected by the ambient heat within the assembly which is greatly augmented by the heat created by the sealing operation" (col. 7, lines 33 – 39).

In a second embodiment, Gorlich et al. utilizes the aforementioned sealer (86) and an alternate cutting system (288) that comprises a heater (302) that extends along the periphery of a blade (290). A temperature range of about 600°F to 900°F, which is dependent on the material to be cut, is to be used by the cutting system (288) to cause plastic vaporization. The sealer (88) and alternate cutting system (288) utilize different temperature ranges to perform sealing and cutting steps that the present invention can perform in one simultaneous step within one temperature range. In one example, Gorlich et al. teaches that a certain plastic layer could be sufficiently softened to be sealed to other layers at a temperature of approximately 250°F, while the same plastic would have a cutting temperature of about 800°F (Col. 10, lines 7 – 20).

Motomura generally teaches a cutter cleaning apparatus for a filling machine. The disclosure refers to a sealer that produces a tubular packaging material formed by continuously sealing in a longitudinal direction. After the packaging material is filled, the

packaging material is sealed laterally at predetermined levels. Subsequently, a cutting knife cuts the packaging material between two seal lines formed at each laterally sealed portion. Motomura does not teach a temperature range, nor does it teach that a cutting edge implement should be heated so as to melt, but not burn, a thermoplastic film.

Noel et al. discloses a method and apparatus for packaging products such as food. A securing device (30) heat seals a web to a tray to enclose the contents of the package. An apparatus is also utilized to raise a portion of the web located adjacent to the sealed portion during, immediately before, or immediately after the securing step. A separate severing device (46) then cuts the web at the elevated portion by way of a conventional cutting tool or a heated cutting element (Col. 7, lines 48 – 55). Noel et al. does not disclose a temperature range or the principle that a cutting edge implement should only melt and not burn a thermoplastic material.

Dworak et al. is directed toward a method and apparatus for sealing polyethelene at high speeds. A heating element (108) moves radially into a drum slot (106) that is covered by film shields (148) to prevent direct contact between the heating element (108) and plastic film (22). A dual drum chain (78) moves a separate knife block assembly (154) into position to perforate the center of a heat seal with serrated edges. Alternatively, a cut-off knife assembly could be used to eliminate the perforation step. Dworak et al. also teaches that the separate heating element (108) heats the film to a temperature in the range of 250°F to effectively liquefy and seal the film.

Wildmoser teaches a sealing apparatus for cutting and sealing thermoplastic sheets under tension. A heated impulse wire (40) operates to cut through thermoplastic sheets under tension that are situated between two silicone rubber sealing members (38). The heater wire (40) also supplies sufficient heat in the adjacent areas on each side of the heater wire to fuse the respective ends of the thermoplastic sheets (18a, 20a) to form a heat seal on both sides of the heater wire. Additionally, Wildman only discloses a temperature range of 350°F to 550°F to seal the thermoplastic sheets.

Gorlich et al., Dworak et al. and Wildmoser teach that the sealing of thermoplastic films should be done at lower temperatures than applicants are claiming. Further, applicants claimed range of about 600°F to about 800°F has been used in the prior art only for the vaporization of plastics. The presently claimed invention of melting but not burning at

ranges typically used for burning or vaporizing thermoplastics is a significant step away from the teachings of the prior art. Under controlling Federal Circuit precedent, "proceeding contrary to the accepted wisdom of the prior art . . . is strong evidence of nonobviousness." See *W.L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 1552 (Fed. Cir. 1983).

Further, because none of the prior art discloses or suggests that it would be desirable or even possible to provide an apparatus or method to contemporaneously seal and cut a plurality of layers of film with a cutting edge implement heated between about 600°F and about 800°F that melts but does not burn thermoplastics, as specified by the claims at issue, it is evident that the claims are not obvious thereover. The prior art must disclose at least a suggestion of an incentive for the claimed combination of elements in order for a *prima facie* case of obviousness to be established. See *In re Sernaker*, 217 U.S.P.Q. 1 (Fed. Cir. 1983) and Ex *Parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. 1985). Accordingly, the obviousness rejection should be withdrawn.

An early and favorable action on the merits is respectfully requested.

Respectfully submitted,

Law Offices of
McCracken and Frank

By: ____________________
J. William, Frank, III
Reg. No. 25,626

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200 W. Adams
Suite 2150
Chicago, IL 60606
Telephone: (312) 263-4700
Facsimile: (312) 263-3990
Customer No.: 29695